

REMARKS

Claims 35-37 have been added. Support for these claims may be found in the specification, for example, at page 11, line 31 through page 12, line 1. Claims 1, 4, 5, 6, 12, 20 and 21 have been amended. Support for the amendments can be found throughout the specification, for example, at page 2, lines 14-15. No new matter has been added. Claims 1, 2, and 4-34 are pending. Claims 1, 14, 20 and 21 are independent.

Rejections under 35 U.S.C. § 103(a)

Claims 1-34 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,788,364 to Cooper *et al.* ("Cooper"). See Office Action at pages 2-3. Claims 1, 14, 20 and 21 are independent.

Claim 1 and dependent claims

Applicants have discovered a light source for examination of a substance which emits light at a wavelength greater than a wavelength of light emitted from the light source when the substance is excited by the wavelength of light emitted from the light source, where the light source includes a low-voltage lamp. **The low-voltage lamp includes a light emitting diode and emits light of a wavelength within a predetermined range of less than about 500 nm.** See independent claim 1.

Cooper teaches a compact, hand-held, high intensity UVA inspection lamp with a straight handle aligned with the beam direction with various features for "solving the problems associated with the heat generated by the high intensity light source." See column 3, lines 55-59 of Cooper. These features include those that isolate, distribute, or dissipate heat. See column 4, lines 41-47 of Cooper.

The light source of independent claim 1 includes a **low-voltage lamp including a light emitting diode**. The Examiner asserts that "it is obvious to anyone of ordinary skill in the art at the time the invention was made that said at least one UVA lamp could have been well known off the shelf diode emitting means; if so desired." See page 3 of the Office Action. In essence, the Examiner contends that replacing the bulb in Cooper with an LED would have been obvious

C

to one of ordinary skill in the art. Applicants respectfully disagree. Cooper does not teach, suggest or motivate one skilled in the art to use a light emitting diode ("LED") as a lamp in a light source.

The lamp described in Cooper is "a high temperature" lamp. See column 1, line 53 through column 2, line 21 of Cooper. Specifically, Cooper contemplates tungsten halogen lamps or arc discharge lamps. See column 1, lines 61-67 of Cooper. Cooper does not describe or suggest a low-voltage lamp including an LED. Indeed, as recognized by Applicants, "LEDs can be used in a lamp without the need to use a filter lens because of the narrow wavelength range of the light emission." See page 11, lines 18-19 of the specification. In contrast, Cooper specifically teaches to include a UV filter to "absorb[] substantially all incident light in the visible spectrum, while transmitting a substantial portion of incident light in at least some band of the UVA spectrum." See column 4, lines 34-36 of Cooper. Thus, a person of ordinary skill in the art following the teachings of Cooper would not have been motivated to use an LED, which does not require filtering as recognized by Applicants, as a lamp in a light source described in Cooper.

Moreover, in claim 1, the lamp (which includes an LED) emits light within a predetermined wavelength range of less than about 500 nm. In Cooper, the lamp does not emit light within a predetermined wavelength range of less than about 500 nm. In Cooper, the UV filter is needed to regulate the wavelength output of the lamp to filter out the undesired wavelengths. The lamp of the light source of claim 1 emits light within a predetermined wavelength range of less than about 500 nm without a filter. Cooper does not teach or suggest such a lamp. In fact, because of the way it is designed, Cooper does not motivate one skilled in the art to pursue alternative light sources that do not require filters. Thus, a person of ordinary skill in the art following the teachings of Cooper would not have been motivated to use a lamp which includes an LED to emit light within a predetermined wavelength range of less than about 500 nm because the lamps of Cooper were not capable of emitting light in the predetermined wavelength range.

Thus, it would not have been obvious to one of ordinary skill in the art to replace the high temperature lamp of Cooper with a lamp including a light emitting diode based on the teachings of Cooper. Cooper lacks any teaching or motivation to replace the high temperature lamp with a

C

lamp including a light emitting diode. Applicants believe that the Examiner has relied on hindsight in reaching his obviousness determination.

Accordingly, independent claim 1 and the claims that depend from it are patentable over Cooper. Applicants respectfully request reconsideration and withdrawal of this objection.

Independent claims 14 and 20 and dependent claims

Applicants have discovered a light source for examination of a substance which emits light at a wavelength greater than a wavelength of light emitted from the light source when the substance is excited by a wavelength of light emitted from the light source that includes a **low heat-generating lamp** positioned in a housing . . See independent claim 14 and 21. Applicants have also discovered a method of detecting a leak in a closed system that includes providing light emitted from a **low heat-generating, low-voltage lamp** to the closed system. See independent claim 20.

Cooper does not teach, suggest or motivate one skilled in the art to use a **low heat - generating lamp** to examine a substance. Instead, Cooper teaches away from such an approach by deliberating designing a light source that isolates, distributes, or dissipates heat from a "a high temperature" lamp. See column 1, line 53 through column 2, line 21 and column 4, lines 41-47 of Cooper. Cooper does not suggest or motivate a person of ordinary skill in the art to use a low-heat generating lamp as a light source for examining a substance. Cooper does not teach or suggest a low heat-generating lamp in a light source.

For at least these reasons, independent claims 14, 20 and 21, and the claims that depend from them are patentable over Cooper. Applicants respectfully request reconsideration and withdrawal of this rejection.

C

Applicant : Terrence D. Kalley, et al.
Serial No. : 09/704,543
Filed : November 3, 2000
Page : 6

Attorney's Docket No.: 09222-054001

CONCLUSION

Applicant asks that all claims be allowed. Enclosed is a check for excess claim fees.
Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 1-6-03



Harold H. Fox
Reg. No. 41,498

Fish & Richardson P.C.
1425 K Street, N.W.
11th Floor
Washington, DC 20005-3500
Telephone: (202) 783-5070
Facsimile: (202) 783-2331

40135867.doc

C

Version with markings to show changes made

In the claims:

Claim 3 has been cancelled.

New claims 35-37 have been added.

Claims 1, 4, 5, 6, 12, 20 and 21 have been amended as follows:

--1. (Amended) A light source for examination of a substance which emits light at a wavelength greater than a wavelength of light emitted from the light source when the substance is excited by the wavelength of light emitted from the light source, the light source comprising:

a housing having a light outlet; and

a low-voltage lamp positioned in the housing and oriented to emit light through the light outlet comprising a light emitting diode,

wherein the low voltage lamp emits light of a wavelength within a predetermined range of less than about 500 nm **[effective to enhance the detection of emission of light from a substance when the substance is excited by the wavelength of light emitted from the lamp].-**

--4. (Amended) The light source of claim 1**[3]** wherein the light emitting diode is a non-diffused type light emitting diode.--

--5. (Amended) The light source of claim 1**[3]** wherein the light emitting diode is a diffused type light emitting diode.--

--6. (Amended) The light source of claim 1**[14]** wherein the housing includes a reflector, the lamp between the reflector and the light outlet.--

--12. (Amended) The light source of claim 1**[14]**, further including a filter lens mounted on the housing.--

--20. (Amended) A method of detecting a leak in a closed system containing a substance for emitting an emission wavelength of light after being excited by an excitation wavelength of light, the method comprising:

providing light within a predetermined wavelength range of less than about 500 nm from a light source to the closed system, the light emitted from a low heat-generating, low-voltage lamp, wherein the lamp is connected to a source of electrical power;

C

illuminating a component of the system with the light within the predetermined wavelength range; and

detecting emission of light from the substance at a leak site. --

--21. (Amended) A light source for examination of a substance comprising:

a hand held housing having a light outlet; and

a battery-powered, low heat-generating, low-voltage lamp positioned in the housing and oriented to emit light through the light outlet,

wherein the lamp emits light of a wavelength within a predetermined range to enhance the detection of emission of light from a substance when the substance is excited by the wavelength of light emitted from the lamp.

C